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ABSTRACT

The Biological Sciences Curriculum Study (BSCS) Human Sciences Project developed, produced, and field tested 13 interdisciplinary, non-traditional, non-text science curriculum modules for early adolescents, ages 11 to 14. The Codebook for Human Sciences Activity Characteristics on Reviewer Evaluation File--HSACRE (ED 211 384) contains 8 variables characterizing 623 activities or activity parts used in the field test of the program (1973-1976, 1977) in middle/junior high schools in the United States. The same file also contains 52 variables that present content and public reviewer's ratings of most of the activities. This user's guide presents the conceptual design and descriptions of four activity characteristic codes (major focus of the activity, type of knowledge required to do the activity, descriptive sources of the activity content, and what students were to do as the activity was studied). Variable names, variable labels, and coding format, are provided. (Author/JN)

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Human Sciences Activity Characteristics and Reviewer Evaluation File, HSACRE

A file containing 8 variables that describe the characteristics of 631 student activities or activity parts that comprised the field test of the BSCS Human Sciences Program, 1973 to 1976, and 1977, in middle and junior high schools in the United States. The file also includes 52 variables that present content and public reviewers' ratings of the activities.

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User's Guide for the Machine-Readable Data File

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Abstract

The Human Sciences Project conceptualized, developed, and field tested a three-year interdisciplinary science curriculum designed especially for early adolescents--students in middle and junior high schools. Data from the field test have been prepared as an SPSS archive data file with 734 and 1,275 variables. Machine-readable codebooks and user's guides have been developed to document this large data base.

This codebook provides frequencies of the values of variables that describe or provide external evaluative ratings of the activities that comprised the experimental materials of the Human Sciences Program. Because the program was an activity-centered, non-text program, new ways of describing the materials were devised.

This user's guide presents the conceptual design and descriptions of four activity characteristic codes: major focus of the activity, type of knowledge required to do the activity, descriptive sources of the activity content, and the action--what students do--as the activity is studied. Intra- and interrater reliabilities were satisfactory, with ranges from .867 to 1.00, with one exception.

The codebook also contains the frequencies of ratings, by academic content reviewers and by public reviewers, of the accuracy of the scientific content and procedures, and of public ratings of the value and community acceptability of the activities.

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Codebook Contents

Variable Name	Variable Label
MODNO	Module Name
TSTYR	Test Year for Activity
GRADE	Grade Level of Students (in test classes)*
CODER	Name of Person Who Coded (activity characteristics)
TASK	Coding Task
CONRV1	Name of First Content Reviewer
SPCLT1	Academic Specialty of First (Content) Reviewer
SCICON1	Science Content of the Activity (Rating of First Content Reviewer)
DIRCTN1	Directions and Procedures (Rating, First Content Reviewer)
CONRV2	Name of Second Content Reviewer
SPCLT2	Academic Specialty of Second (Content) Reviewer
SCICON2	Science Content of the Activity (Rating, Second Content Reviewer)
DIRCTN2	Directions and Procedures (Rating, Second Content Reviewer)
CONRV3	Name of Third Content Reviewer
SPCLT3	Academic Specialty of Third Content Revi(ewer)
SCICON3	Science Content of the Activity (Rating, Third Content Reviewer)
DIRCTN3	Directions and Procedures (Rating, Third Content Reviewer)
CONRV4	Name of Fourth Content Reviewer
SPCLT4	Academic Specialty of Fourth Content Rev(iewer)
SCICON4	Science Content of the Activity (Rating, Fourth Content Reviewer)
DIRCTN4	Directions and Procedures (Rating, Fourth Content Reviewer)
CONRV5	Name of Fifth Content Reviewer
SPCLT5	Academic Specialty of Fifth Content Rev(iewer)
SCICON	Science Content of the Activity (Rating, Fifth Content Reviewer)
DIRCTN5	Directions and Procedures (Rating, Fifth Content Reviewer)
PUBRV1	Name of first public reviewer
HSEXP1	Child (first reviewer) was in Human Sciences classes?
RV1ITM1	Students would find this (activity) interesting (rating)
RV1ITM2	This activity is worthwhile (rating)
RV1ITM3	Parents in my community would approve (this activity)
RV1ITM4	This activity should be (retained) in Human Sciences
PUBRV2	Name of second public reviewer

*Parentheses include information not printed in Codebook label

HSEXP	Child (second reviewer) was in Human Sciences classes?
RV2ITM1	Students would find this (activity) interesting (rating)
RV2ITM2	This activity is worthwhile (rating)
RV2ITM3	Parents in my community would approve (this activity)
RV2ITM4	This activity should be (retained) in Human Sciences
PUBRV3	Name of third public reviewer
HSEXP3	Child (third reviewer) was in Human Sciences classes?
RV3ITM1	Students would find this (activity) interesting (rating)
RV3ITM2	This activity is worthwhile (rating)
RV3ITM3	Parents in my community would approve (this activity)
RV3ITM4	This activity should be (retained) in Human Sciences
PUBRV4	Name of fourth public reviewer
HSEXP4	Child (fourth reviewer) was in Human Sciences classes?
RV4ITM1	Students would find this (activity) interesting (rating)
RV4ITM2	This activity is worthwhile (rating)
RV4ITM3	Parents in my community would approve (this activity)
RV4ITM4	This activity should be (retained) in Human Sciences
FOCUS	Major focus or foci of the activity
KNLDG	Piagetian knowledge requirement of activity
DSPLN	Discipline sources of activity content
DOING	What students do as they study the activity
CONMEAN1	Mean rating, content accuracy of activity
CONMEAN2	Mean rating, accuracy of directions
PUBMEAN1	Mean rating, student interest
PUBMEAN2	Mean rating, worthwhile activity
PUBMEAN3	Mean rating, parental approval
PUBMEAN4	Mean rating, retain in HSP

History of the Originating Project

The history of the Human Sciences curriculum project is provided in Ross (1981). A description of test sites and other critical information about the field tests and data colected are provided in Robinson (1981a). Complete copies of the procedures and instruments used in the formative evaluation of the Human Sciences Program is available in Robinson (1981b). The evaluation data collected of the three-year period, 1973-76, and Spring, 1977, are available for research use as described in Robinson and Tolman (1981).

Utilization of evaluation data from the Human Sciences project for future research purposes raised questions about the characteristics of the activities that comprised the student component (activities) of the three-year curriculum materials. Since students in field test classes chose the activities they studied, it became important to identify critical characteristics of these activities.

The Human Sciences Program, as field tested, was subdivided into three Levels: I, II, and III. Each level was divided into large curriculum units termed modules. Modules consisted of interrelated groups and subgroups of activities. Thirteen modules containing 452 activities were tested in academic years 1973-74, 1974-75, and 1975-76 with sixth, seventh, and eighth graders, respectively. One module, KNOWING, containing 44 activities, was tested in the Spring of 1977 with a different group of students.

The Human Sciences materials provided a unique opportunity to examine in detail the curriculum each student chose within a module, a level, or for the full three-year period. However, an activity title is not sufficient information to use in examining activity choice. Ways of describing each activity in terms of a set of characteristics were needed. By characterizing each activity, activities with similar characteristics (or with differing characteristics) could be used to explore student choice patterns. A coding system was devised to make possible the numerical characterization of each activity that was field tested. This coding system is described in the following section.

The Activity Coding System

Four major characteristics were formulated to characterize each activity: major activity focus, type of knowledge required to successfully complete the activity, the discipline source of the content of the activity, and what kinds of things students did as they studied the activity. Activities were then coded for subcategories within each major characteristic.

Criteria for coding within the four major activity characteristics were developed, tested, and retested. Two coders coded activities for some 40-45 categories within the four major characteristics, keeping notes of reasons for such codings. Criteria were written, coding was done and compared. Through this procedure, 37 characteristics were selected for the final coding.

Coding Conventions

Coders used the student activity as the object for coding. They did not read the teacher's guide to the activity. The literal content of the activity plus media, worksheets, evaluation problems, and other materials students used as they did the activity were the data sources for activity coding.

These conventions were adopted because teacher's guides were not provided for some activities and because of differences in these guides for different grade levels. Coding was done to reflect the activity from the students' perspective.

Identification Data

Each activity is identified by six codes: MODNO, the number and name of the module in which the activity was studied; ACTNO, the number and name of the particular activity being rated; TSTYR, the academic year in which the module and activity was field tested; GRADE, the grade (sixth, seventh, or eighth) level of the students testing the activity; CODER, the name of the person who coded the activity characteristics; and TASK, the coding task, used to identify what the task was. This last identifier was used to identify whether the coding was original (value=1), coding for interrater reliability (value=2), a crosscoding (value=3) for intrarater reliability. Only value=1 are included in this file. The codebook criteria only aggregate data, omitting the variable ACTNO. The data file contains identification of each activity with all of the codings for that activity.

Major Activity Focus

The theoretical design of activities in Human Sciences called for activities to have combinations of three major kinds of emphasis: cognitive, affective, and craftsmanship (Robinson, 1977a, 1977b). These areas of emphasis were derived from the theoretical model of the curriculum that asked the question, "How can the disciplines of the natural and behavioral sciences serve the cognitive, social, and personal growth of early adolescents?" The goal was to produce activities with all three emphases. In practice, this was very difficult to accomplish. Activities could include only one major focus, all three foci, or various combinations of them.

Craftsmanship Focus

A major part of some activities was craftsmanship, constructing, or building. Craftsmanship was judged as part of an activity if students put things together, built apparatus, or otherwise assembled parts that could have been already assembled. The student could not complete the activity satisfactorily without construction. Construction could have been the product (end), or means to other ends. Craftsmanship subsumes, but is more comprehensive than the psychomotor domain described in Bloom, et al. (1956).

Affective Focus

Some activities required the students to develop empathy, to reflect on how objects or events affected other persons, to be sensitive to other person's feelings, or to examine one's own feelings about some object or event. Or, a major part of the activity was an appeal to emotions or feelings rather than, or in addition to, acquisition of new knowledge or reformulations of knowledge in new contexts. Aesthetic outcomes, appreciating form, design, beauty, etc., were further examples of the affective focus. Affect is synonymous with the affective domain described by Krathwohl and his colleagues (1964).

Cognitive Focus

A major focus of some activities was knowledge acquisition. Knowledge acquisition may have involved reasoning or remembering, either exactly as presented, or with reformulation, but without reasoning or performing cognitive operations. Cognition as described here is classified by Piagetian types of knowledge rather than the taxonomy developed by Bloom, et al. (1956).

Each activity was assigned a single code number to describe the major focus. The major focus was coded for one or for any combination of the three categories described above.

Coded Values

One of eight values was assigned to each activity to describe the major focus characteristics (variables). The values and value labels for this characteristic are:

Value Labels	Value
Craftsmanship	1
Affect	2
Cognition	3
Craftsmanship and affect	4
Craftsmanship and cognition	5
Affect and cognition	6
Craftsmanship, affect, and cognition	7
Not codeable into the above categories	8

Types of Knowledge

Any activity may have required knowledge acquisition, even though its central focus may have been craftsmanship or affect. The criterion used in deciding the single code for the "Types of Knowledge" category was to determine a single highest level predominant type of knowledge acquisition that a student utilized if the activity were to be understood as the writers of the activity intended. If a single question or a small part of an activity required a high level of knowledge acquisition, it did not determine the code. The knowledge type coded was to be predominant, not unique. If two knowledge types were equally predominant, the higher type (defined by the higher number in the coding values described below) was coded.

In general, each activity was assigned a single "type of knowledge" code. The code reflected the predominant logical requirement of the activity. Predominant included situations where a higher knowledge type was required to get the "gist" of the activity even though a lower type was also predominant. In this instance the higher type was recorded.

The first determination was to dichotomize the general knowledge type, that is, to determine if the knowledge acquisition was essentially figurative or operative. If figurative, the task ended and the coded value, figurative knowledge, was applied. If operative knowledge was required, the kind of operative knowledge was coded as precisely as possible.

Figurative Knowledge

Figurative knowledge is knowledge that has not resulted from reasoning. It depends on recognition of the configuration of the stimulus. Figurative knowledge emphasizes forms of representation: deferred imitation, symbolic play, drawing, mental imagery, language, and memory--especially rote memory.

Passive "reading" of data without having to mentally act on, reason about, or transform it is a good example of figurative knowledge acquisition. When students are asked "What did you see?" or when they are asked to describe or consider static states of objects at some point in time, figurative knowledge acquisition is the requirement.

When the emphasis is on symbolically representing information without requiring any logical transformation, figurative knowledge is being attained. In figurative knowledge, emphasis is on representation without consideration of the necessary logical relation between the knowledge represented and the representation itself, e.g., words become an end in themselves and not a means to an end. Further examples are: asking for an accurate "reading" of the situation without asking for an understanding of what was "read," or, an activity was written in such a way that the student could easily go through the activity without reasoning.

Figurative knowledge includes all preoperational knowledge. The preoperational child tends to take the immediate appearance of things as the sole and ultimate reality. A single, isolated cognition with little or no potential is the hallmark of the preoperational child (Flavell, 1963, p. 167). When the activity required isolated cognition without comparison or reference to other cognitions, the activity asked for figurative knowledge.

Operative Knowledge

Operative knowledge is knowledge that results from reasoning. In general, operations consider how things have changed from what they were to what they are now, or how things might change. Operations ask for an inference, an induction, or a deduction. It is a representational act which is an integral part of an organized network of related acts. Cognitive operations are a holistic domain, presupposing a structured system that includes other related operations, "for the moment latent and inactive but always potentially actualizable by themselves and, above all, always a force governing the form and character of the operation which is momentarily on stage" (Flavell, 1963, p. 167).

Concrete Operations

Concrete operations are inductions, inferences, and deductions from or about concrete witnessed events. The content of deductions is real objects. The focus is on the properties of objects, classification and relations, or facts and contradictions of facts. Concrete operations include inductive summative processes of accumulating instances (examples) and correspondences. They are "concrete" rule oriented, rules being fixed and immutable. Formal operational problems, such as the pendulum problem (Inhelder and Piaget, 1958), can be reduced to concrete operational problems by providing concrete referents in all aspects of the problem and eliminating many alternatives for the student. Concrete thinking may, nevertheless, be very sophisticated, and, therefore, difficult.

Concrete operational requirements in an activity were elaborated into subtypes for coding purposes. These types are explained following the discussion of formal operations.

Formal Operations

Formal operations are operations on the potential and hypothetical rather than on the real. Formal operations require the delineation of all possible (logical) eventualities at the outset and then to try to discover which of these possibilities really do occur in the present data. The real becomes the special case of the possible, not the other way around (Flavell, 1963, p. 204). When proportional reasoning, logically manipulating contrary-to-fact propositions, hypothetical deductive thinking, and systematic combinatorial thinking were required in an activity, the coding was for formal operations.

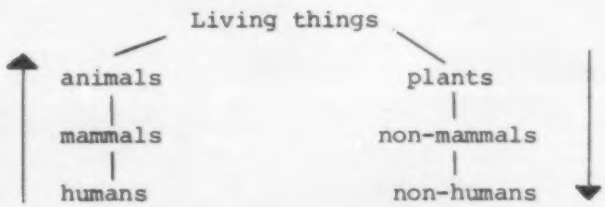
This category was not further elaborated. It was not used when one question in an activity reflected formal requirements. In distinguishing the concrete from formal dichotomy the convention was to code the predominant operation required, rather than the highest mode required in the activity.

Coding Categories Within Concrete Operations

The Roman numeral designations provided in this section follow the conventions used in Flavell (1963) and Inhelder and Piaget (1958) for convenience in referring to those sources for further specifications of each type of thinking. The coder selected the single most appropriate category, a subcategory within concrete operations, when the decision was made that the activity required concrete operational thought as its predominant knowledge acquisition mode.

Primary addition of classes--I (class inclusion, class hierarcy)

"Class" refers to concrete, real, physical entities. The student was required to make subclasses, make a superordinate class, or make a set of superordinate classes. For example, the student was required to take a superordinate class and make two or more subordinate classes, as shown below.



Secondary addition of classes--II (reclassification)

The student was required to reclassify classes. For example, a class group of teachers (one class group) and students (one class group) were to be reclassified as male (one class group) and female (one class group). This knowledge type was not coded. It will be included in the "not codeable" category.

Multiplication of classes--III-IV (or bi-univocal multiplication of classes)

Classes, as before, refers to concrete, real physical entities. Students may have been asked to relate one class to another (one-to-one) or many classes to one class, or vice versa (one-to-many). All of these cognitive tasks were coded in this category.

Intersection of Classes--A

The logic required is to generate the intersection of two or more variables (classes), creating a new entity (class) at the

intersection. The initial entities lose their identity as the new class is developed. For example, students would be asked to determine whether the size of a weight or the length of string on the weight controlled the rate of swing (period) of a pendulum. Students were provided a 3X3 table for the number of swings that occur when each element of one set (size of weight) intersected with each element of a second set (string length). Notice that the entries within the table (frequencies) are different from the entries that define the intersecting classes. Also notice that the entries within the table define a single entity whereas the entries within a correspondence table (see "Correspondence," below) essentially involve two, or more, entities.

String Length	Number of Swings in 30 Seconds		
	Small Weight	Medium Weight	Heavy Weight
6 in.			
12 in.			
18 in.			

In intersection, the elements that define the classes that are intersected define a "new entity." For example, in completing the matrix, "types of people," the intersection of three eye-color classes with four hair-color classes required the student to generate new classes--types of people. Intersection of classes was one of the alternative values used to code the characteristic, types of knowledge.

Hair Color	Eye Color		
	Brown	Blue	Hazel
Brown			
Black			
Blond			
Red			

Types of people

Correspondence of classes--B

Correspondence of classes asks students to set in correspondence each element from one class (say, five boys with names, Al, Bob, Dan, Chuck, and John), with each element from another class (say five girls

with names, Louise, Marsha, Sally, Nancy, and Tina). Notice that when each element of one class is set in correspondence with each element of another class, a complete matrix is produced. Also, notice that the elements that make up the body of the matrix still retain their original identities, i.e., there are two elements that "make up" each cell of the body of the matrix. Similar logic is required for developing the incomplete matrix. However, the results are different because one element of a class is set in correspondence with one element of a second class. For example, if students were asked to set a picture of a middle-class American family in correspondence with a white frame middle-class American family house (from a set of house pictures and a set of people pictures), no other correspondence of the middle-class American family with any other house would be correct. Notice that the form of the result is similar to the table for the pendulum problem. The logic is identical, but the entries in the table are different--there is one and only one correct entry for each class. Thus, the result of this type of correspondence is a single line of correspondences in contrast to a complete matrix as described in the boy-girl example.

		Pictures of Houses								
		A	B	C	D	E	F	G	H	K
	1									
	2									
Pictures	3									
	4									
of	5									
	6									
People	7									
	8									
	9									

Seriation--V (ordering, sequencing, addition of asynometrical relations)

This group of logical operations requires students to order concrete objects or events. Such ordering may be from largest to smallest (descending), youngest to oldest (ascending), most expensive to least expensive, and similar sequencing or ordering of classes.

Addition of Symmetrical Relations--VI

Sibling relations are the best example of this type of knowledge. This category was not coded. Examples fall in "not codeable" category.

Multiplication of Relations--VII-VIII (intersection of relations; correspondence of relations from one series with relations of another series; one-to-one or biunivocal multiplication of relations, and many-to-one multiplication of relations).

Intersection of Relations--A

Intersection of relations is analogous to intersection of classes. The student is required to generate the intersection of two or more series, creating a new series jointly defined by the original series. In intersection the relations that define the two series that are intersected define a "new entity." The position of each element in each series must be unique to correctly define the relations among the elements. It follows from this requirement that the entries in a table displaying a solution to an intersection of relations problem are defined by their joint position when both series are simultaneously taken into consideration.

Correspondence of Relations--B

Solving a problem requiring the operation, correspondence of relations requires the student to set in correspondence one element from one series with one, and only one, element from another series. For example, a student is asked to set in correspondence one of the elements from a series of boys of different heights with one of the elements of a series of fishing poles of different heights (i.e., the second shortest boy should coincide with the second shortest pole and the third shortest boy should coincide with the third shortest pole). In this example the correspondence established is between two increasing series (i.e., as the boys get taller, the poles they are using get taller).

There may be two decreasing series or a problem in which one series is increasing and the other decreasing. Correspondence of relations involves any of a set of problems in which the relations among the elements in a series are fixed and in which there is only one element in one series that can correctly be put in correspondence with only one element in a second series. Note that the result of this type of correspondence is a single line of correspondences in contrast to a complete matrix.

Summary for Coding Types of Knowledge

Activities requiring concrete operational thought were coded for one, and only one, of the six categories (I, III-IV A, III-IV B, V, VII-VIII A, VII-VIII B) of concrete operational thought described above. If the activity did not require concrete thought it was coded as "figurative knowledge," "formal operations," or not codeable.

The values and value labels for the type of knowledge characteristic for which activities were coded were:

Value Label	Value
Figurative knowledge concrete operations	1
Addition of Classes--I	2
Multiplication of Classes--III-IV	
Intersection--A	3
Correspondence--B	4
Seriation--V	5
Multiplication of Relations--VII-VIII	
Intersection--A	6
Correspondence--B	7
Formal Operations	8
Not codeable into the above categories	9

Content of the Activity

Activities were categorized as to the discipline sources of their content. First, the major content focus was coded. Then a second and third code were given to completely describe the activity content. Three content codes were assigned to each activity.

Coding proceeded in the following manner. The major content descriptor was coded first. If there was no other content source in the activity, the descriptor code was repeated twice. If there were two content descriptors for an activity, the major content source was coded once; the second content source, twice. If there were three or more content sources, the three that best described the content of the activity were selected. The major content descriptor was coded first. There was no attempt to try to hierarchically code the remaining two content codes. The lowest numbered content source was coded second; the highest, third. Note that every activity was assigned three content code numbers. The following content sources describe most activities in the Human Sciences program.

Life Sciences

The content or process(es) used was (were) derived from or directly related to one of the subdisciplines of the biological, medical, or health sciences.

Physical Sciences

The content or process(es) used was (were) derived from or directly related to one of the subdisciplines of physics, chemistry, engineering, or materials sciences.

Earth Sciences

The content or process(es) used was (were) derived from or directly related to one of the subdisciplines of geology, oceanography, astronomy, paleontology, or meteorology.

Behavioral Sciences

The content or process(es) used was (were) derived from or directly related to one of the sciences that deals with human action and developing of generalizations of human behavior in society, i.e., psychology, sociology, anthropology, archeology.

Social Sciences

The content or process(es) used was (were) derived from or directly related to one of the sciences that deals with the institutions and functioning of human society and with the interpersonal relationship of individuals as members of society, i.e., economics, political science.

Humanities

The content or process(es) used was (were) derived from or was (were) directly related to history, languages, literature, or philosophy.

Fine Arts

The content or process(es) used was (were) derived from or was (were) directly related to subjects for which aesthetic purposes are primary or uppermost, such as painting, sculpture, drawing, architecture, music, ceramics, dance, drama, or landscape architecture.

Mathematics

The content or process(es) used was (were) mathematical.

Other

The content or process(es) used does (do) not fall into one of the above categories.

Summary for Coding Activity Content

An interdisciplinary curriculum such as Human Sciences required multiple descriptors for the sources of the content for activities.

Therefore, each activity was given three content codes. The first code was the major content source. Two additional non-hierarchical categories were provided to complete the description. The value labels and values of these activity characteristics are:

Value Labels	Values
Biology	1
Physical Sciences	2
Earth Sciences	3
Behavioral Sciences	4
Social Sciences	5
Humanities	6
Fine Arts	7
Mathematics	8
Not codeable into the above categories	9

What Students Do in Activities

This category was used to code the central "doing" that students engaged in as they studied the activity. An activity could have more than one "doing." Three two-digit codes were used to describe what students did. Each "doing" was to be critical to the achievement of the activity goals.

In some activities there were several of these "doings." For example, in "Strange Fossil" (KNOWING), constructing was the most necessary "doing." It was one thing the student must have done to get the "gist" of the activity. Note that this coding was not done for outcomes, but for what the student did. Creating would be a second descriptor, as the student was to create a restoration from which deductions were to be made. Without the creation, the intellectual purpose of the activity was lost. Note that the focus of the activity can be captured by these two descriptors. There was reading in the activity about fossils, but reading was limited. All of the "doing" characteristics of each activity may not be coded; only one, two, or three--the most important "doings."

Some categories are self-evident and, therefore, have limited definitions. Deciding a primary or secondary "doing" would be difficult and probably arbitrary. Therefore, the three codes for each activity were assigned without weight or precedence. In coding, the convention adopted was that the lower number was always coded first; the next higher number, second; and the highest number, third. In this way activities with the same "doings" have the same code sequence. If an activity had only one "doing" it was triple coded for that characteristic. If only two "doings" were assigned, the second "doing" was repeated, but is not to be evaluated as a weighting.

Fourteen "doings" were required to characterize this facet of Human Sciences activities.

Appreciating

A non-cognitive act of positive awareness or positive recognition of some object or event.

Calculating/Computing/Graphing

A single category in which one or more of these operations was central to the conduct of the activity.

Constructing

The student must have built, put together, or in some other way constructed something in order to carry out the intent of the activity.

Creating

The preparation of something novel, when the student was asked to produce a novel product and not given criteria for judging whether the product was the "right" product.

Deciding

Included decision-making, coming to a choice among alternatives for a course of action, or arriving at a consensus by a group. A decision usually implied action or potential action.

Experimenting

The student gathered data systematically under specified conditions. Variables or controls need not have been specified. This category differs from Information Gathering (below) in being systematic and controlled.

Interviewing

Conducting one or more interviews was an essential part of the activity.

Listening/Watching

When the student used a sound/slide, sound/filmstrip, or sound/film product.

Nurturing

When students were caring for plants and/or animals over a period of days or weeks, or where keeping organisms alive was an essential component of successfully meeting the activity focus.

Reading

When a booklet or book integral to the activity must have been read by the student to do the activity successfully. Activities with long internal narrative, such as "Time Travel Into The Paleozoic," (KNOWING) would be coded once for reading.

Listening

When the activity depended on the student listening to a tape recording, record, stethoscope, or other sound device.

Valuing

Included the decision that A was of more worth or importance than B. It was comparative and more than two alternatives might have been compared. The outcome of the comparison resulted in a higher value for one of the alternatives.

Watching/Viewing

Included the use of silent film, film loops, flat pictures, overhead transparencies, slides, filmstrips with no sound, wall charts, or posters.

Information Gathering

Measuring, counting, taking photos, making prints of objects, diagramming, sketching, describing, and recording observations in natural settings are examples of information gathering. Information gathering differs from experimenting in that data gathering took place in naturalistic environments with no attempt to randomize, to sample, or to control variables.

Summary of Codes for "Doings"

In summary, each activity was coded for one, two, or three "doings." These codings were not hierarchical, but were arranged in a series of three, two-digit numerals, with the lowest numeral left-justified, followed by the next higher numeric codes. By adopting this convention, activities with the same "doings" have identical codes. The value and value labels for this activity characteristic are:

Value Labels	Values
Appreciating	11
Calculating	12
Constructing	13
Creating	14
Deciding	15
Experimenting	16
Listening/Watching	18
Nurturing	19
Reading	20
Listening	21
Valuing	22
Watching/Viewing	23
Information Gathering	24
Not codeable into the above categories	25

Reviews of Human Sciences Activities

Introduction

Public and content reviews of selected activities from the experimental modules of the Human Sciences program were conducted in April, 1977.

Public reviewers were selected upon recommendation of national citizens and educational organizations and from principals in Human Sciences field test schools. All public reviewers had a child in middle school or junior high school. Eighteen public reviewers were brought to the BSCS headquarters to review activities. Nine of the 18 had no knowledge of Human Sciences prior to their arrival. Nine others were parents of students who had participated in the field testing of the Human Sciences Program.

Content reviewers were selected on the basis of specializing in any one of the content areas of the Human Sciences activities. Reviewers were selected from colleges and universities throughout the United States. Reviewers had not been involved as writers on the project, although some knew of the project through their colleagues. Content reviewers were brought to the BSCS for the review process, also. Complete details of both reviews are documented in Ross (1977a and 1977b), unpublished evaluation papers of the Human Sciences Project.

Content reviewers were selected by academic specialty to review selected experimental activities. Criteria for selecting the activities were:

- a potential or actual controversial subject was included in the activity,

- content needed to be reviewed for accuracy because of extensive revision or criticism by previous informal review.

Activities were given priorities on these criteria and assigned to the appropriate content reviewer. The highest priority activities were reviewed first and others were reviewed later if time permitted. All high priority activities were reviewed at one of two content review conferences.

The review plan provided that every activity be reviewed by at least one content reviewer whose specialty was central to the activity, with a second reviewer with similar preparation where feasible. Additional reviewers were needed for some activities because of their interdisciplinary character. As the content review conference progressed, some activities generated additional interest and received additional reviews.

The Reviewer Coding System

Each content reviewer was assigned a code number and specialty code (see Appendix A) that identified all reviews completed by that individual. Names of the reviewer are also provided in Appendix A, but are not keyed to the file codes.

Public reviewers were also assigned code numbers and were assigned an additional code identifying whether or not one of their children participated in test classes of Human Sciences (see Appendix A).

All reviewers were provided with the student activity cards, work sheets, evaluation materials, equipment, media, and supplies required for successful completion of the activity by the student. Reviewers were invited to write comments directly on the materials where appropriate. Additionally, each content reviewer was asked to complete an evaluation form with two multiple-choice questions and two open-ended essay questions (see Appendix B). Data from the two multiple-choice problems are included in the data file. No other data were coded.

Public reviewers were also asked to complete an evaluation form for each activity they reviewed. This form had four Likert-type items plus space for comment (see Appendix C). Only responses to the Likert items were coded.

Data for a maximum of five content reviews and four public reviews were coded and are in the data file. The term "first" for content and public reviewer designates the first space allocated in the file for content or public reviewer data. Six variables (CONMEAN1, CONMEAN2, PUBMEAN1, PUBMEAN2, PUBMEAN3, and PUBMEAN4) were computed for each activity using the COMPUTE and COUNT facilities of SPSS. The procedure used was to add the rating value from each content or public reviewer for a particular item on the Activity Evaluation Form, count the number of ratings, and divide the sum by the count to produce the new variable, a mean score for all ratings for each

item for each activity. The distribution of mean scores was printed in the Codebook using the FREQUENCIES subprogram of SPSS.

Module and activity identifiers are provided to define the activity case in the data file. Values for the module codes are provided in the codebook, but the activity codes are not printed as there is only one value for each module plus activity identifier. The activity codes, by module, are presented below.

ACTIVITY CODING FORMAT, LEVEL 1

BEHAVIOR (Code 01)

Code	Activity Title
01	Grotty
02	What's Going On Here?
03	Help, I'm Coming Unplugged!
04	Shut Your Ears and Open Your Eyes
05	Where Did You Get That Idea?
06	Mind Your Posture
07	Animal Crackles
08	Where Do They Live?
09	Interface
10	Pandemonium
11	Brain Jam
12	The Settlers
13	Time Line
14	Rhythms and Patterns
15	All Thumbs
16	How Did They Get That Way?
17	Slow Down
18	Friends
19	The Game
20	Paste-A-Person
21	Is Anything Wrong With That?
22	The Twins
23	Boy or Girl?
24	Jabberock
25	Winning and Losing
26	Unfriendly Actions--Friendly Feelings
27	What's the Problem?
28	What Would You Have Done

SURVIVAL (Code 02)

Code	Activity Title
01	The Mysterious Yuk
02	Mice Meals
03	What Do Mice Eat?
04	Food Chain
05	Let's Make a Mobile
06	Is Taste the Test?
07	Food for Thought
08	What's in it for You?
09	If You Want It, Can You Get It?
10	Did I Eat All That?
11	The American Way of Eating
12	Job Cards--Food
13	The Mouse Takes a House
14	The Gerbil's House
15	The Incredible Ant
16	What's For Sale?
17	My Family Space
18	The Mini-Community
19	Adventures at Home
20	Animal Shelters
21	Job Cards--Shelter
22	It's Off to Work I Go!
23	Keep on Truckin'
24	Future Job
25	What's It Worth?
26	Judging Jobs
27	Job Ladder
28	Job Cards--Work

SENSE...OR NONSENSE (Code 03)

Code	Activity Title
01	Extending Our Senses
02	Attention!
03	Sight and Sound
04	What If You Couldn't See?
05	The Silent World
06	What Is It Like?
07	Seeing Myself
08	The Wall of Light
09	Animal Worlds
10	What Do You See?
11	Do You See What You Feel?
12	What Are They Doing?
13	The Perception Chain
14	You Are A Witness
15	Do You See What I See?
16	The Time Capsule
17	The Seeing Room
18	Near and Far

19 Hot or Cold?
20 What's Fair?
21 Who's Most Important
22 How Far Is It?
23 Behind the Scenes

LEARNING (Code 04)

01 Oops! I'm Off Balance
02 Maze Mission
03 How Do You Do It?
04 Making a Flying Wing Glider
05 Airplane Controls and How They Work
06 How Does a Balloon Rocket Work?
07 What is the Best Way?
08 Making Things
09 Mirror Road
10 Music is Feeling
11 What Do You Think of That?
12 Monkey See, Monkey Do
13 What's So Funny?
14 Five Square
15 Where Do You Stop?
16 How Do Colors Affect You
17 Cemeteries and Obituaries
18 Making a Family Tree
19 Digging Up the Past
20 Pocketful of Problems
21 Secret Codes
22 Sounds and Words
23 Pictures and Words
24 Mr. Toad
25 Can Fish Learn?
26 Rewards for Learning
27 Elmer the Unbeatable

GROWING (Code 05)

01 Raising Baby Mammals
02 Spiders
03 Butterflies
04 Growing "Bugs"
05 The Honey Trip
06 Raising Amphibians
07 The Living Grocery
08 Seeds and Gardens
09 The Monkey's Tale
10 Pets and Pests
11 Becoming an Adult: Part 1
12 Body Changes: Part 1
13 Great Expectations: Part 1
14 The Super Amazing Growing Me: Part 1
15 Having Babies
16 Life Before Birth
17 Growing, Growing, Grown!
18 Voices
19 Developing Yourself
20 What Age?
21 Becoming an Adult: Part 2
22 Body Changes: Part 2
23 Great Expectations: Part 2
24 The Super Amazing Growing Me: Part 2
25 Children's Ideas
26 Children's Thinking
27 Children's Values
28 Secret Selves
29 That's Mime
30 Cycles

ACTIVITY CODING FORMAT, LEVEL II

RULES (Code 06)

01 Plant Rules
02 Hear It From a Judge
03 Fish Do It, Birds Do It
04 Rules and Humor
05 Rules for Roles
06 Pet Babies
07 Survival Rules
08 Rules Nobody Can Change
09 On Being the Right Size
10 The Rules in Schools
11 Rules For Finding Food
12 Animal Action
13 Who's Chicken?
14 Flight Distance

15 Rules of the Road
16 A Swingin' Rule
17 Silent Rules
18 Planaria
19 Discussing Dilemmas
20 Discovering Rules of Science
21 Folkways or Mores?
22 Protein for People or Pets?
23 Loyalty, But To What?
24 When is it Right to Break a Rule?
25 Powderhorn
26 When Animals and People Live Together
27 Riding Shotgun
28 Ben Franklin's Rules
29 Police Officer's Choice
30 Broken Cups
31 The Biggest Predator
32 If Rules Are Wrong
33 Game Rules: New and Then
34 Faraway Places and Long-ago Times
35 Cooperationball
36 The Great Gum Case
37 Family Changing
38 Rules in a Free School
39 Build a Utopia
40 Spinning Seeds
41 Etiquette
42 Break a Rule
43 Responsibility is the Rule
44 Rules of the Game
45 Selur Island

WHERE DO I FIT? (Code 07)

01 A Rule of Thumb
02 A Day in the Life Of...
03 When Do I Fit?
04 Windy
05 Doing Time
06 Challenge
07 Are You Healthy?
08 Know Your Teacher
09 Ask Beth
10 Knowing Others
11 For Righties Only
12 Right or Wrong: Who Decides?
13 Heads and Feet
14 Whom Do You Go To?
15 Fingerprinting
16 People Match
17 Class Data Bank
18 Controlling My Body
19 Looking Inward
20 Tall, Taller, Tallest
21 Reasons Why
22 Once I Was a Teenager, Too
23 You and Your Century
24 Baboons
25 The Wolf Pack
26 The All American Kid
27 How Much Do I Use?
28 Follow the Leader
29 Literally Buried
30 How Do I Do It?
31 Them Bones, Them Bones
32 A Tooth for a Tooth
33 Two Views
34 The Future is Now
35 Teach-a-Person
36 Lifespan
37 Sizes and Shapes
38 Getting Together
39 Roughing It
40 Help-A-Person
41 Doctor, Lawyer, Indian Chief
42 Past, Present, and Future
43 Beyond 2000 A.D.
44 Housing for the Future
45 People

PERCEPTION (Code 08)

01 A-maze-ing
02 Color in Light
03 Day or Night
04 Experiments in Color
05 Eye Aye!
06 Fade Out--Fade In
07 Fighting Fish
08 Hi-Fi-Fo-Fum
09 How Does Taste Smell?
10 How Does Your Coleus Grow?
11 Is the Name the Same?

12 Measuring Temperature Changes
13 Optricks
14 Other Ways of Seeing
15 Patterns or Confusion
16 Perceiving Growth
17 Plant Perception
18 Recognizing Faces
19 Spinners and Stoppers
20 Checkers: Fast and Different
21 Commercial Watch
22 Hocus Focus
23 Is Anyone There?
24 Looking Down
25 Mapping It Out
26 Mystery Boxes
27 Noise Annoys
28 On Time
29 Out-of-Sight
30 Putting Color to Work
31 Sun Watch
32 The Big Sell
33 What's Going on Here?
34 A Class Newspaper
35 Body Language
36 Caricatures
37 Categories
38 Codes and Ciphers
39 Communicating Without Words
40 Handtalk
41 Making a Wireless Telegraph
42 My Activity
43 One Writing for One World
44 Person of the Year
45 Sex-Role Images
46 What's New?
47 Who's Boss?

REPRODUCTION (Code 09)

01 Multiple Births
02 Birth of a Baby
03 A Great Day for Medaka Fish
04 From Egg to Chicken
05 Why Unborn Babies Don't Get Hurt
06 From Fertilized Egg to Birth
07 Observing Pregnancy
08 Experiments with Seeds
09 Producing and Reproducing Plants
10 Sexual Reproduction in Flowering Plants
11 Putting It All Together
12 What's the Difference?
13 Am I Regular?
14 Dating: Then and Now
15 Arranged Marriages
16 My Ideal
17 Courtship Among the Nacirema
18 Reproduction in the Year 2015
19 Mating Time
20 Nursing
21 Watching Animals and Their Young
22 Caring for New Babies
23 Extended Family
24 Family Relationships
25 What Makes a Family?
26 Adopting a Child
27 Mother-Parent, Father-Parent
28 Baby Costs
29 A Closer Look at Child Care
30 Living with Birth Defects
31 Make-A-Toy
32 Learning to be a Parent
33 How Many Chidren?
34 People and More People
35 Rabbit Island
36 Birth Certificates
37 Question Box
38 What's the Latest?
39 Debating Issues About Reproduction

ACTIVITY CODING FORMAT, LEVEL III

CHANGE (Code 10)

01 Quiet: Plants Working
02 Bean Rhythms
03 GA and the Beanstalk
04 Tree Rings and Time
05 The More the Better?
06 You, the Animal Trainer
07 Cool It!
08 Goldfish and Drugs
09 Earth Movers
10 Who Survives?
11 Change and Change Again
12 Of Time and Temperature
13 Yeast It!
14 Microbes in Milk
15 Changing the Recipe
16 Working with Fruit Flies
17 Making and Using Graphs
18 Seeing Small Things
19 Input/Output
20 Biofeedback
21 Nostalgia Box
22 The Phantom Tollbooth
23 Me Now, Me Then, Me When
24 Divorce
25 Death
26 Changing Behavior
27 Positive Mail
28 Technoland
29 Do Not Spit at Random
30 Controlling Community Change
31 Growing Up Politically
32 Adopt-A-Stock
33 Acculturation
34 Architectural Change
35 Milk Bar
36 Watch the Crystals Grow
37 Ice-Water-Ice
38 Disappearing Water
39 Wind Power/Person Power
40 Calories, Calories
41 Sweet Concrete
42 Acids, Bases, and Indicators
43 Cookie Chemistry
44 Metal Overcoats
45 Rock Around
46 Streaming Along
47 Solar Energy
48 Rubber Band Cannon
49 Changing Numbers

FEELING FIT (Code 11)

01 Personal Health Inventory
02 Is Your Family Tree Healthy?
03 Blood Pressure
04 Blood Tests and Examinations
05 Rhythms of a Healthy Heart
06 What Is Wrong With This Blood?
07 Breaking Unhealthy Habits
08 Can You Achieve a Natural High?
09 How Fast Can You React?
10 Coffee and Me
11 Smoking and You
12 Working Lungs
13 Muscle Building
14 Muscle Relaxation
15 Looking Into the Stomach
16 Sensible Reducing and Weight Control
17 Why Do People Have Skin Problems?
18 Where's Your Plaque?
19 Will Your Career Affect Your Ear?
20 How Do Glasses Correct For Farsightedness and Near-sightedness?
21 The Immunology Game
22 Aloneness can be Positive
23 Expressions of Loneliness
24 Send a Person to Coventry
25 My Life: Who Decides?
26 Drugs: What Do You Think?
27 Stress: How Do You Cope?
28 Cigarette Advertising
29 Your School Cafeteria: A Case Study
30 Fooling the Senses With Food Substitutes
31 Hairy Investigations

32 Pets and People
33 Venereal Disease
34 The Sirius Stain
35 Trapping the Wild Microbe
36 Folk Medicine: Then and Now
37 Geography of Life and Death
38 Life or Death?

INVENTION (Code 12)

Invention activities are coded by activity parts rather than by activity.

01 Paper I
02 Paper II
03 Paper III
04 Paper IV
05 Paper V
06 Paper VI A
07 Paper B
08 Printing I A
09 Printing B
10 Printing C
11 Printing II A
12 Printing B
13 Printing C
14 Printing D
15 Printing III
16 Printing IV
17 Money-Money-Money I A
18 Money-Money-Money B
19 Money-Money-Money II A
20 Money-Money-Money
21 The Camera I
22 The Camera II
23 The Camera III
24 The Camera IV
25 The Telephone I A
26 The Telephone II
27 The Telephone B
28 The Telephone C
29 The Telephone III
30 The Telephone IV
31 Technology and Music I A
32 Technology and Music B
33 Technology and Music II A
34 Technology and Music B
35 Technology and Music C
36 Technology and Music III
37 Technology and Music IV
38 The Bicycle I
39 The Bicycle II
40 The Bicycle III
41 The Bicycle IV
42 The Bicycle V
43 The Bicycle VI
44 The Automobile I
45 The Automobile II
46 The Automobile III
47 Airplanes I
48 Airplanes II A
49 Airplanes B
50 Airplanes III A
51 Airplanes B
52 Airplanes C
53 Airplanes D
54 Airplanes E
55 Airplanes F
56 Space Travel I
57 Space Travel II A
58 Space Travel B
59 Space Travel C
60 Space Travel D
61 Weaving I
62 Weaving II
63 Weaving III
64 Weaving IV
65 Scrub-A-Dub-Dub I
66 Scrub-A-Dub-Dub II A
67 Scrub-A-Dub-Dub B
68 Scrub-A-Dub-Dub C
69 Scrub-A-Dub-Dub D
70 Scrub-A-Dub-Dub III
71 Scrub-A-Dub-Dub IV
72 Shoes I
73 Shoes II A
74 Shoes B
75 Shoes C
76 Marking Time I
77 Marking Time II
78 Marking Time III
79 Marking Time IV
80 Marking Time V
81 The Power of Humans, Horses, and Other Machines I
82 The Power of Humans, Horses, and Other Machines II

83 The Power of Humans, Horses, and Other Machines III
84 The Power of Humans, Horses, and Other Machines IV
85 The Power of Humans, Horses, and Other Machines V
86 Machine Shop I
87 Machine Shop II A
88 Machine Shop B
89 Machine Shop III A
90 Machine Shop B
91 Machine Shop IV A
92 Machine Shop B
93 King Coal I
94 King Coal II A
95 King Coal B
96 King Coal C
97 King Coal III
98 The Plastic World I
99 The Plastic World II
100 The Plastic World III
101 The Plastic World IV
102 The Plastic World V
103 Automatic Controls I
104 Automatic Controls II
105 Automatic Controls III
106 Automatic Controls IV
107 Computers I A
108 Computers B
109 Computers C
110 Computers II A
111 Computers B
112 Computers C
113 Computers III
114 Shelter I
115 Shelter II
116 Shelter III
117 Shelter IV
118 Food Preservation I A
119 Food Preservation B
120 Food Preservation C
121 Food Preservation II A
122 Food Preservation III A
123 Food Preservation B
124 Food Preservation IV A
125 Food Preservation B
126 Food Preservation V
127 Food Preservation VI
128 Food Preservation VII
129 Food Preservation VIII A
130 Food Preservation B
131 Here Comes An Earthquake I
132 Here Comes An Earthquake II
133 Here Comes An Earthquake III
134 Hurricane Alert I
135 Hurricane Alert II
136 Kidney Machine I
137 Kidney Machine II
138 Kidney Machine III
139 Kidney Machine IV
140 Protecting Property and Life I
141 Protecting Property and Life II
142 Protecting Property and Life III A
143 Protecting Property and Life B
144 Protecting Property and Life C
145 Protecting Property and Life IV
146 War Machines I
147 War Machines II
148 War Machines III
149 Introduction to Invention I
150 Introduction to Invention II
151 Introduction to Invention III
152 You And Other Great Inventors I
153 You And Other Great Inventors II
154 You And Other Great Inventors III

SURROUNDINGS (Code 13)

01 Zoom In...Zoom Out
02 Our Changing Surroundings
03 Counting Tomorrow's Crowd
04 Animal Munchies
05 How Well Do Others Know You?
06 Electronic Surroundings
07 Life on Humans

08 Going to the Dogs
09 Here, Kitty, Kitty
10 They Prowl by Night
11 Can You Dig It?
12 To Blend or Not to Blend?
13 The Beasts in the Meadow
14 Tools of Nature
15 Green Scenes
16 Wet Pets
17 Watch the Birdie
18 Moon Watch

KNOWING (Code 14)

01 The Strange Fossil
02 Time Travel into the Paleozoic
03 Counting With Carbon
04 Rosetta II
05 Where Did We Come From
06 Patterns in Your Past
07 Pueblo People in the Past
08 The Solar Merry-Go-Round
09 Sun Watch
10 The Star Gazers
11 What Do the Stars Know?
12 Human Ideas About Disease
13 Farther and Faster
14 Hot Spit
15 Levers of the Body
16 Knowing About the Brain
17 A Way of Seeing Inside the Human Body
18 Building With Bricks
19 Foiled Again
20 Materials in Space
21 Building Materials: How Good Are They?
22 Images of Brush and Pen
23 How Old Are They?
24 The Unknown Millions
25 Vital Statistics
26 The Very Different Ones
27 Surveys, Samples, and Schools
28 Size Wise
29 Knowing Yourself
30 A Martian Test
31 Martian Tales
32 Four Views of Mars
33 Moving Words
34 Dancing Motion
35 Vibes
36 Rolling Along
37 Heavenly Motion
38 Magic Motion
39 The Rainmakers
40 Weather Music
41 The Weather According to Granny Oakes
42 Do Dew Drops Drop?
43 The Storm
44 Ways of Knowing (Sound filmstrip, all-class)

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Using the Activity Coding System

Two coders who had been members of the Human Sciences project coded the activities. Preliminary codings were completed and deliberated, with consequent revision of the descriptions of the coding categories and criteria. Three revisions of the descriptions of the original descriptions were made to produce the final coding criteria. The modules were divided by general content emphasis, with the behavioral science coder coding the modules with more behavioral science activities and the natural science coder coding the activities in modules with more natural science activities.

Intra-rater reliability was determined by having each coder recode a random sample of 10 percent of the activities they previously coded, after a delay of four weeks from the original coding.

Inter-rater reliability was determined by having each coder code the 10 percent sample of activities recoded by the other coder. This cross-coding was done six weeks after the recoding.

The Spearman rank correlation coefficient Siegel (1956) was used to calculate these reliabilities.

Intra-rater reliabilities ranged from 0.87 to 1.00 (Table 1).

TABLE 1
Intra-rater Reliabilities of Activity Codes
by Codes and Coding Categories

	CODER 1		CODER 2	
CATEGORY	N	rs	N	rs
Major Focus	23	.98	37	.98
Knowledge Type	23	1.00	37	.95
Discipline Sources	23	.97	37	.87
WHAT STUDENTS DO				
1st Match	23	1.00	37	1.00
2nd Match	23	1.00	37	.94
3rd Match	23	.89	37	.88

Three codes were issued for the category "What Students Do" in the activity. For both intra- and inter-rater reliabilities, the three codes assigned to the activity were examined for correspondence. If there were no matching codes, the lowest numbers were selected as a pair, followed by the next lowest. If one or more pairs matched, the lowest numerical pair were placed in the "1st match" group, the second in the "2nd match" group, etc. Matched pairs precluded non-matched pairs in being assigned to 1st, 2nd, or 3rd matched pairs.

Inter-rater reliabilities ranged from 0.42 to 1.00 (Table 2).

TABLE 2
Inter-rater Reliabilities of
Activity Codes by Categories

CATEGORY	rs
Major Focus	.95
Knowledge Type	.94
Discipline Sources	.96
WHAT STUDENTS DO	
1st Match	1.00
2nd Match	.86
3rd Match	.42

The low reliability for the 3rd match in the category "What Students Do" indicates the weakness of this sub-category. Many activities had more than three "doings," the coding of which of two or more "doings" were most important to coder was apparently arbitrary. Nonetheless, both inter- and intra-rater reliabilities are very satisfactory for having confidence in the activity characteristics codes.

File Processing Summary

The HS Activity Characteristics File was developed from optical-scan sheets. Secretarial personnel prepared sheets with identifying numbers, plus the name of the module and activity. A template was used by coders to assure that coding errors would be minimal. Optical scan sheets were ordered numerically by module and activity in order to detect identifying code errors. Errors caught by scanning were corrected by key punching new codes.

The data file was created and stored as an SPSS system file. SPSS program Frequency was used to check on the accuracy of coded values, as well as to provide output for the data dictionary.

There were several activities listed by title and/or number that could not be coded. In Level I, MODNO 02, Survival, Job Cards-Food (ACTNO 12), Job Cards-Work (ACTNO 21), and Job Cards-Shelter (ACTNO 28) could not be coded because each activity had from eight to ten options, each with unique characteristics. Data collected did not include records of which card(s) students used within each of these activities.

In Level II, MODNO 06, "Where Do I Fit?" ACTNO 24, "Baboons," and ACTNO 28, "Follow The Leader," were film loops that were proposed but not produced for field testing. In MODNO 08, Reproduction, three integrative (all class) activities were not coded although they were available in the field test classes. No data were gathered for these activities.

This User's Guide was prepared by using the AM Jacquard J500 word processor as a data input and editing device and then using it interactively with the University of Colorado Cyber 720 computer. Data and copy were exchanged between these two units to prepare the final files for this project.

Appendix A
Coding Protocols for Content and Public Reviewer Data

The following protocols were used to code data from the Activity Evaluation Forms (Appendices B and C) onto optical scan sheets for conversion to card images. Listings and SPSS "FREQUENCIES" were used to provide data for verifying the accuracy of the coded data.

HUMAN SCIENCES ACTIVITY CHARACTERISTICS AND REVIEWER EVALUATION FILE

Card Column	Variable Name	Content	Value No.	Value Label
1-2	MODNO	Module Title	01	BEHAVIOR
			02	SURVIVAL
			03	SENSE...OR NONSENSE?
			04	LEARNING
			05	GROWING
			06	RULES
			07	WHERE DO I FIT?
			08	PERCEPTION
			09	REPRODUCTION
			10	CHANGE
			11	FEELING FIT
			12	INVENTION
			13	SURROUNDINGS
			14	KNOWING
3-4	ACTNO	Activity Title	Comment: Activity numbers begin and end within each module. See below for titles and codes. Therefore, the four digit field of module and activity code is required to provide a unique identifier for each activity. The INVENTION module is an exception. The activities in this module required three digits. The activity code was expanded to Cols. 3, 4, and 5. Therefore, TSTYR is a one digit field in Col. 6 in INVENTION only.	
5-6	TSTYR	Field Test Year	73	1973-74*
			74	1974-75
			7(5)	1975-76
			77	Spring, 1977
			x	*See "Comment"

7	GRADE	Grade Level of Field Test	6	Sixth Grade
			7	Seventh Grade
			8	Eighth Grade
8	CODER	Activity Coder	1	McConnell
			2	Ross
9	TASK	Activity Coder Task	1	Code the Activity
			2	Cross Code (code activity for inter-rater reliability)
10	(no data)			
11-12	CONRV1	Name of first	01-26	Each value identifies a particular academic content reviewer. Names of reviewers are provided below.
13-14	SPCLT1	Academic specialty of first reviewer	10	Biology
			11	Physical Sciences
			12	Zoology
			21	Anthropology
			22	Psychology
			23	Sociology
			31	Education
			32	Engineering
			33	Forestry
			34	Health Sciences
			35	Medicine
			36	Policy Studies
15	SCICON1	Response to Item 1	(See Appendix B for complete item) Notes	
16	DIRCTN1	Response to Item 2	(See Appendix B for complete item)	
17-18	CONRV2			
19-20	SPCLT2			
21	SCICON2			
22	DIRCTN3		These variables are repeats of CONRV1, SPCLT1, SCICON1, and DIRCTN1 for other academic specialists reviewing the activity.	
23-24	CONRV3			
25-26	SPCLT3			
27	CONRV3			
28	DIRCTN3			
29-30	CONRV4			
31-32	SPCLT4		Codes 31-45. Each value identifies a particular public reviewer. Names of reviewers are provided below.	
33	CONRV4			
34	DIRCTN4			
35-36	CONRV5			
37-38	SPCLT5			
39	CONRV5		The Likert-type items were scored:	
40	DIRCTN5			

41-42	PUBRV1	Name of first Public Reviewer	SA=1 D=4 A =2 SD=5 N =3 Blank=6 If multiple-responses were given, the more critical response was recorded.
43	HSEXP1	Parent of Human Sciences test group child	
44	RV1ITM1	Response of the same reviewer to Item 1.	
45	RV1ITM2	Response of the same reviewer to Item 2.	
46	RV1ITM3	Response of the same reviewer to Item 3.	
47	RV1ITM4	Response of the same reviewer to Item 4.	
48-49	PUBRV2		These variables are repeats of PUBRV1, HSEXP1, RV1ITM1 to RV1ITM4, for the additional resources of the activity.
50	HSEXP2		
51	RV2ITM1		
52	RV2ITM2		
53	RV2ITM3		
54	RV2ITM4		
55-56	PUBRV3		
57	HSEXP3		
58	RV3ITM1		
59	RV3ITM2		
60	RV3ITM3		
61	RV3ITM4		
62-63	PUBRV4		
64	HSEXP4		
65	RV4ITM1		
66	RV4ITM2		
67	RV4ITM3		
68	RV4ITM4		

Computed Variables

The variables list below was computed to complete the data tape and codebook for this activity characteristics file. The six variable are mean scores, calculated using the SPSS Compute and Count facilities.

Name		
CONMEAN1	Mean, Content Review Activity Evaluation Form, Item 1	The SPSS COMPUTE facility does not print decimals; therefore, mean scores on these six variables were multiplied by ten. This provides one significant figure beyond the decimals. For CONMEAN1, interpret CODE 10 as mean score 1.0, with 427 (67.7 percent) of the activities rated at 1.0.
CONMEAN2	Mean, Content Review Activity Evaluation Form, Item 2	
PUBMEAN1 to PUBMEAN4	Means, Public Review Activity Evaluation Form, Items 1 to 4	

Appendix B:
Activity Evaluation Form, Content Reviewers

Activity # _____
Activity Title _____
Reviewer _____

Please circle the letter of the statement that best reflects your reactions to the activity.

1. The science content in the activity (SCICON1)

   1. is too limited to make comments about.
   2. is accurate as written.
   3. needed minor revisions that I have made on the activity card.
   4. needs some staff work to complete the revisions I have suggested.
   5. needs extensive work to be useful.

   Comments:

2. The directions and procedures for the student (DIRCTN2)

   1. have no technical material so I did not comment on them.
   2. are accurate as written.
   3. needed minor revisions that I have made on the activity card.
   4. needs some staff work to complete the revisions I have suggested.
   5. needs extensive work to be useful.

   Comments:

3. The activity as a whole could be improved by:

4. Please use the back of this form for specific comments you would like to write about this activity.

Appendix C:
Activity Evaluation Form, Public Reviewers

Activity # _____
Activity Title _____
Reviewer _____

Please rate each statement for the activity you have reviewed.

Circle: SA if you strongly agree with the statement
A if you agree with the statement
N if you are undecided or neutral about the statement
D if you disagree with the statement
SD if you strongly disagree with the statement

Circle One

1. Young people I have known (6th or 7th or 8th graders) would find this activity interesting. SA A N D SD

   Comments:

2. This will be a worthwhile activity for students who choose to do it. SA A N D SD

   Comments:

3. Most parents in my community would approve this activity. SA A N D SD

   Comments:

4. This activity should be included in Human Sciences. SA A N D SD

   Comments:

Write additional comments on the back.

Appendix D:
Data File and Codebook Shipment

The Human Sciences Activity Characteristics and Reviewer Evaluation date are distributed in three files: the machine-readable user's guide, the codebook, and the data.

The user's guide and the codebook are available on magnetic tape, as print documents, and in microfiche form. The data, stored on an SPSS Systems File, are available on magnetic tape. Output will be written from the runs, one for card images and a second for SPSS labels. Users with CDC hardware may order an SPSS systems file if desired.

A request form for ordering tape appears on the next page. The data tape will be produced by a Control Data Corporation (CDC) computer. Labels produced by CDC equipment cannot be used by other computers. To avoid problems in reading the tape, an unlabeled tape is recommended. SPSS labels will be output in a form readable by any computing system with SPSS software. Both data and labels will be output from SPSS version 8.0. Unless otherwise specified, data will be written XF3.0 format, where X is the number of variables in the file.

Tape files are listed below. Use these titles on the Tape Order Form:

Human Sciences Activity Characteristics and Revision Evaluation File, HSACRE.

Codebook for Human Sciences Activity Characteristics and Reviewer Evaluation File, HSACRE.

Human Sciences Activity Characteristics and Reviewer Evaluation File, HSACRE, User's Guide to the Machine-Readable Data File.

Requests for the user's guide and codebook should specify whether print copy or microfiche form is desired. Use the Nontape Order Form for print or microfiche materials. Cost estimates will be sent prior to preparation and delivery. The publication, Human Sciences Evaluation Materials, discussed in the first section of this User's Guide, may be ordered on the Nontape Order Form. Cost estimates will be sent prior to preparation and delivery.

TAPE ORDER FORM

Name: _____

Address: _____

_____

_____

Title(s) of tape(s) requested: _____

_____

Tape Recording Specifications

Seven-track Tape

Density (BPI)		200	556	800
Parity		Even	Odd	
Record blocking		Blocked	Unblocked	
Maximum block size		_____		
Record length		80 columns	Other _____	
CDC standard labels		Labeled	Not labeled	
1-6 character label		_____		
Character code	ASCII	EBCDIC	Other _____	

Nine-track Tape

Density (BPI)		800	1600	6250
Parity		Odd		
Record blocking		Blocked	Unblocked	
Maximum block size		_____		
Record length		80 columns	Other _____	
CDC standard labels		Labeled	Not labeled	
1-6 character label		_____		
Character code	ASCII	EBCDIC	Other _____	

Send to: Center for Educational Research and Evaluation
833 W. South Boulder Road
Louisville, CO 80027

NONTAPE ORDER FORM

Name: _____

Address: _____

_____

_____

Materials Requested

No. of Copies	Title	Form
_____	Human Sciences Activities Characteristics and Reviewer Evaluation File, HSACRE, User's Guide to the Machine-Readable Data File	___Print ___Microfiche
_____	Codebook for Human Sciences Activity Characteristics and Reviewer Evaluation, HSACRE	___Print ___Microfiche
_____	Human Sciences Evaluation Materials	___Microfiche Only

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